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UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/890,940	08/07/2001	Hiroyuki Ito	L9289.01166	9160

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Stevens Davis Miller & Mosher
1615 L Street NW Suite 850
Washington, DC 20036

EXAMINER
AUVE, GLENN ALLEN

ART UNIT	PAPER NUMBER
2111	4

DATE MAILED: 01/28/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**.　　2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _1-14_ is/are pending in the application.

　　4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) _1-14_ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on _07 August 2001_ is/are: a)☒ accepted or b)☐ objected to by the Examiner.

　　Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

　　Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

　　a)☒ All b)☐ Some * c)☐ None of:

　　　1.☐ Certified copies of the priority documents have been received.

　　　2.☐ Certified copies of the priority documents have been received in Application No. _____.

　　　3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

　　* See the attached detailed Office action for a list of the certified copies not received.

13)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

　　a) ☐ The translation of the foreign language provisional application has been received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _3_.

4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Claim Rejections - 35 USC § 112

1.   The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2.   Claims 1-14 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 is rejected based on lack of positive antecedent basis of "said interrupt" on line 5; "said interrupt source" on line 8; and "the suspended task" on lines 24-25.

Claims 2-4 are rejected because they depend on claim 1.

Claim 2 is also rejected based on lack of positive antecedent basis of "the call address" on lines 3-4.

Claim 5 is rejected based on lack of positive antecedent basis of "the source of said interrupt" on line 8; "said interrupt" on line 8; "each said interrupt source" on line 10; and "the suspended task" on the last line. Claim 5 is also rejected because it is not clear what is meant by "by means of this control" on line 6.

Claims 6-8 are rejected because they depend on claim 5.

Claim 6 is also rejected based on lack of positive antecedent basis of "the call address" on line 4; "said suspended task" on line 12; and "said execution task control information" on line 13.

Claim 7 is also rejected based on lack of positive antecedent basis of "said execution task control information" on lines 15-16; and "said task suspension processing" on line 18.

Claims 9-11 are each rejected based on lack of positive antecedent basis of "the source of said interrupt" on about line 9; "said interrupt" on about line 9; "each said interrupt source" on

about line 11; and "the suspended task" on the last line. Claims 9-11 are also each rejected

because it is not clear what is meant by "by means of this control" on about line 7.

Claims 12 and 13 are each rejected based on lack of positive antecedent basis of "said

interrupt" on about line 7; "said interrupt source" on about line 10; and "the suspended task" on

the last line.

Claim 14 is rejected based on lack of positive antecedent basis of "each interrupt

source" on lines 3 and 12.

Claim Rejections - 35 USC § 102

3.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the

basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4.   Claims 1,5, and 9-14 are rejected under 35 U.S.C. 102(b) as being anticipated by

Yokomizo, U.S. Pat. No. 5,768,599.

As per claim 1, Yokomizo shows an interrupt controller (12) including an interrupt mask

(30); save processing means for saving information on a task being executed when an interrupt

is generated (inherent in the processing of interrupts); interrupt source judging means (in the

controller 12); interrupt managing means for holding interrupt acceptance possibility states

prepared for each source independently of the handler (in the mask table 30); interrupt mask

canceling means (8); multiple interrupt control means for performing mask update control

according to processing of the interrupt managing means and the mask canceling means (12);

interrupt mask control means for performing mask update control (7,8,14); and task restoration

means for restoring information on a task being executed at the time of the interrupt generation

that was saved by the save processing means and restarting the suspended task (at least in fig. 6., step S3 and the explanation in col.6). Yokomizo shows all of the elements recited in claim 1.

As per claim 5, Yokomizo shows controlling interrupt reporting (12) with an interrupt mask (30); saving information on a task being executed when an interrupt is generated (inherent in the processing of interrupts); determining an interrupt processing task to perform according to the interrupt source (in the controller 12, see also cols. 4-6); holding interrupt acceptance possibility states prepared for each source independently of the handler (in the mask table 30); performing interrupt mask update control according to mask cancellation information ((8),(12) and cols. 4-6); performing transition of processing between a determined interrupt task and the interrupt handler (cols. 4-6); and restoring information on a task being executed at the time of the interrupt generation and restarting the suspended task (at least in fig. 6., step S3 and the explanation in col.6). Yokomizo shows all of the steps recited in claim 5.

Claims 9-11 all claim the same interrupt management method; the only difference among the claims is in the preamble of each claim which set forth intended fields of use and are given no patentable weight. Therefore all three claims are being treated together.

As per claims 9-11, Yokomizo shows controlling interrupt reporting (12) with an interrupt mask (30); saving information on a task being executed when an interrupt is generated (inherent in the processing of interrupts); determining an interrupt processing task to perform according to the interrupt source (in the controller 12, see also cols. 4-6); holding interrupt acceptance possibility states prepared for each source independently of the handler (in the mask table 30); performing interrupt mask update control according to mask cancellation information ((8),(12) and cols. 4-6); performing transition of processing between a determined interrupt task and the interrupt handler (cols. 4-6); and restoring information on a task being executed at the time of

the interrupt generation and restarting the suspended task (at least in fig. 6., step S3 and the explanation in col.6). Yokomizo shows all of the steps recited in claims 9-11.

Claims 12 and 13 both claim the same interrupt management apparatus; the only difference between the claims is in the preamble of each claim which set forth intended fields of use and are given no patentable weight. Therefore both claims are being treated together.

As per claims 12 and 13, Yokomizo shows an interrupt controller (12) including an interrupt mask (30); save processing means for saving information on a task being executed when an interrupt is generated (inherent in the processing of interrupts); interrupt source judging means (in the controller 12); interrupt managing means for holding interrupt acceptance possibility states prepared for each source independently of the handler (in the mask table 30); interrupt mask canceling means (8); multiple interrupt control means for performing mask update control according to processing of the interrupt managing means and the mask canceling means (12); interrupt mask control means for performing mask update control (7,8,14); and task restoration means for restoring information on a task being executed at the time of the interrupt generation that was saved by the save processing means and restarting the suspended task (at least in fig. 6., step S3 and the explanation in col.6). Yokomizo shows all of the elements recited in claims 12 and 13.

As per claim 14, Yokomizo shows an interrupt handler (4,5); interrupt managing means for holding interrupt acceptance possibility states prepared for each source independently of the handler (in the mask table 30); and interrupt mask canceling means (8) provided independently of the handler for canceling a mask set of an interrupt source for which an interrupt is accepted, wherein the interrupt handler controls interrupt enabling/disabling for each source by updating the mask using the managing means and the mask canceling means (at least cols. 4-6). Yokomizo shows all of the elements recited in claim 14.

Conclusion

5.   The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The other cited references also show interrupt processing.
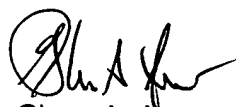
6.   Claims 2-4 and 6-8 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

7.   The following is a statement of reasons for the indication of allowable subject matter: claims 2 and 6 include limitations directed to the task management control means and its functions in claim 2 and just those recited task control function steps in claim 6. Those particular limitations are not present in the prior art and would not have been obvious.

8.   Any inquiry concerning this communication or earlier communications from the examiner should be directed to Glenn A. Auve whose telephone number is (703) 305-9638. The examiner can normally be reached on M-Th 8:00 AM-5:30 PM, every other Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Rinehart can be reached on (703) 305-4815. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.

Glenn A. Auve
Primary Examiner
Art Unit 2111

gaa
January 21, 2004